

REMARKS

Claims 3-12, 21 and 22, as amended, are before the Examiner for consideration. Claims 13-20, 23 and 24 stand withdrawn from consideration.

Claim 3 has been amended to recite means for detecting at least one pinhole in the insulting layer. The pinhole detecting means are the last means recited in the claim; thus, no new issue has been raised. Claims 6, 7 and 12 have been amended to delete the word "type." Claims 11 and 12 have been amended to recite measuring the value of a current flowing between the electrode and the reversed polarity electrode plate for detecting at least one pinhole in the insulting layer. Claims 7, 10, 12, 21 and 22 have been amended to recite "frame-shaped container" consistent with the specification. Claim 22 has been amended to recite supplying a chemical solution to the recited container through a chemical solution port, the chemical solution being circulated between a chemical solution port and a chemical solution discharge port. See the supporting disclosure in applicant's specification at page 47, lines 1-25 and Fig. 14.

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1. Claims 3-10 and 21 were rejected under 35 U.S.C. §112, first paragraph. The Examiner states that the phrase in claim 3 reading "an electrode being covered with an insulating layer," allegedly is not supported (described) in the specification. The specification at page 41 describes passivation layer 37 covering components other than the pixel electrode in the image displaying section, i.e., the insulating layer in which possible pinholes are to be detected. The specification supports the phrase. Reconsideration and withdrawal of the rejection are respectfully requested.

2. Claims 6-8, 10-12 and 21 were rejected under 35 U.S.C. §112, second paragraph. Claims 6, 7 and 12 have been amended to delete the word "type." The term "box-shaped" in claim 10 has been changed to "frame-shaped" as in claim 6. Reconsideration and withdrawal of the rejection are respectfully requested.

3. Claims 3, 4, 6-8 and 21 were rejected under 35 U.S.C. §103(a) over Ting et al. U.S. Patent 6,017,437 in view of Poris U.S. Patent 5,368,711.

The presently claimed in-substrate selective electrochemical treatment system includes an electrode for connection at a periphery of an insulating substrate being held by a holding means for holding a chemical solution, the electrode-being covered with an insulating layer, to a conductive pattern located on such an insulating substrate, a reversed polarity electrode plate for applying an electric charge to the chemical solution, the electric charge having polarity opposite to an electric charge of the electrode, and means for detecting at least one pinhole in the insulting layer including means for measuring the value of a current flowing between the electrode and the reversed polarity electrode plate. This arrangement is nowhere disclosed or suggested in the cited references.

The Examiner admits that Ting et al. '437 does not disclose means for measuring the value of a current flowing between the electrode having an insulating layer and the reversed polarity electrode plate, and cites Poris '711 as allegedly disclosing same for the purpose of achieving uniform material deposition during the electrolytic process. Applicant asks how such a

teaching is found in Poris '711? Where would the material be deposited? The only possible places are the two electrodes of opposite charge, one of which is insulated and therefore could not receive deposited material. How would a combination of Poris '711 and Ting et al. '437 result in material deposition, if one of two anode/cathodes in an electrolyte is insulated, as recited in applicant's claim 3? Applicant's claimed insulated electrode element cannot be ignored; in such an arrangement with an insulated electrode, material deposition is not possible. Therefore, adaptation of the Ting et al. '437 arrangement with the ammeter of Poris '711 will not give the treatment system recited in claim 3.

Moreover, applicant's claim 3 recites "means for detecting at least one pinhole in the insulting layer" comprising means for measuring the value of a current flowing between the electrode and the reversed polarity electrode plate. Without the purpose of achieving controlled material deposition, there is no motivation found within Poris '711, or through knowledge of a person skilled in the art, for modifying the cell of Ting et al. '437, to obtain applicant's means for detecting at least

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one pinhole in the insulting layer, e.g., to include an ammeter to measure the current in the cell for detecting at least one pinhole in the insulting layer of one of the electrodes, as recited in applicant's claim 3.

For the foregoing reasons, neither Ting et al. '437 nor Poris '711 contains any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicant's claimed invention. Nor is there any disclosure or teaching in either of these references that would have suggested the desirability of combining any portions thereof effectively to suggest applicant's presently claimed invention. Claims 4, 6-8 and 21, which depend from claim 3, are allowable for the same reasons claim 3 is allowable. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

4. Claims 3-7 and 21 were rejected under 35 U.S.C. §103(a) over Talieh U.S. Patent 6,176,992 in view of Poris '711.

The presently claimed in-substrate selective electrochemical treatment system includes means for detecting at

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least one pinhole in the insulting layer including means for measuring the value of a current flowing between the electrode and the reversed polarity electrode plate. This arrangement is nowhere disclosed or suggested in the cited references.

Talieh '992 is admitted by the Examiner not to disclose means for measuring the value of a current flowing between the electrode having an insulating layer and the reversed polarity electrode plate, Poris '711 is cited as allegedly disclosing these current measuring means for the purpose of achieving uniform material deposition during the electrolytic process. Applicant submits that the rejection suffers the same infirmities discussed above involving the rejection based upon Ting et al. '437 and Poris '711. The same questions are posed. Where would the material be deposited? The only possible places are the two electrodes of opposite charge; electrode is insulated and therefore could not receive deposited material. How would a combination of Poris '711 and Talieh '992 result in material deposition, if one of two anode/cathodes in an electrolyte is insulated, as recited in applicant's claim 3? Applicant's insulated electrode limitation cannot be ignored,

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and in such an arrangement containing an insulated electrode, material deposition is not possible. Therefore, adaptation of the Talieh '992 arrangement with the ammeter of Poris '711 will not reach applicant's invention recited in claim 3.

Moreover, applicant's claim 3 calls for "means for detecting at least one pinhole in the insulting layer" comprising means for measuring the value of a current flowing between the electrode and the reversed polarity electrode plate. Without having a reason to achieve controlled material deposition, there is no motivation provided by Poris '711, or through knowledge of a person skilled in the art, for modifying the cell of Talieh '992, to obtain applicant's means for detecting at least one pinhole in the insulting layer, e.g., to include an ammeter to measure the current in the cell for detecting at least one pinhole in the insulting layer of one of the electrodes, as recited in applicant's claim 3.

For the foregoing reasons, neither Talieh '992 nor Poris '711 contains any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicant's claimed invention. Nor is there any disclosure

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or teaching in either of these references that would have suggested the desirability of combining any portions thereof effectively to suggest applicant's presently claimed invention. Claims 4, 6-8 and 21, which depend from claim 3, are allowable for the same reasons that claim 3 is allowable. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

5. Claims 3, 7, 12 and 21 were rejected under 35 U.S.C. §103(a) over Batz, Jr. et al. U.S. Patent 6,334,937 in view of Poris '711.

The presently claimed in-substrate selective electrochemical treatment system includes means for detecting at least one pinhole in the insulting layer including means for measuring the value of a current flowing between the electrode and the reversed polarity electrode plate. This arrangement is nowhere disclosed or suggested in the cited references.

The Examiner admits that Batz, Jr. et al. '937 does not disclose means for measuring the value of a current flowing between the electrode having an insulating layer and the

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reversed polarity electrode plate, and cites Poris '711 as allegedly disclosing same to achieve uniform material deposition during the electrolytic process. The questions posed in the traversal of the first two art rejections are posed again. Where would the material be deposited? The only possible places are the two electrodes of opposite charge, as already noted one electrode is insulated and therefore could not receive deposited material. How would a combination of Poris '711 and Batz, Jr. et al. '937 result in material deposition, if one of two anode/cathodes in an electrolyte is insulated, as recited in applicant's claim 3? Applicant's insulated electrode limitation cannot be ignored, and therefore, in a system with such an arrangement, material deposition is not possible. Therefore, adaptation of the Batz, Jr. et al. '937 arrangement with the ammeter of Poris '711 will not give applicant's invention recited in claim 3.

Applicant's claim 3 recites moreover "means for detecting at least one pinhole in the insulting layer" comprising means for measuring the value of a current flowing between the electrode and the reversed polarity electrode plate. Having no

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purpose to achieve controlled material deposition, there is no motivation provided by Poris '711, or through knowledge of a person skilled in the art, for modifying the cell of Batz, Jr. et al. '937, to obtain applicant's means for detecting at least one pinhole in the insulting layer, e.g., to include an ammeter to measure the current in the cell for detecting at least one pinhole in the insulting layer of one of the electrodes, as recited in applicant's claim 3.

For the foregoing reasons, neither Batz, Jr. et al. '937 or Poris '711 contains any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicant's claimed invention. Nor is there any disclosure or teaching in either of these references that would have suggested the desirability of combining any portions thereof effectively to suggest applicant's presently claimed invention. Claims 7, 12 and 21, which depend from claim 3, are allowable for the same reasons explained herein for claim 3. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

6. Claim 9 was rejected under 35 U.S.C. §103(a) over Ting et al. '437, Poris '711 and Icxix et al. U.S. Patent 3,637,468, and claim 9 was rejected under 35 U.S.C. §103(a) over Talieh '992, Poris '711 and Icxix et al. U.S. Patent 3,637,468. Both rejections are traversed.

Claim 9, which depends ultimately from claim 3, is allowable for the same reasons that claim 3 is allowable.

Moreover, Icxix et al. '468, cited for allegedly teaching cooling electrolytic system, does not overcome the previously explained deficiencies of Ting et al. '437, Talieh '992 and Poris '711.

For the foregoing reasons, none of Ting et al. '437, Poris '711 and Icxix et al. '468 contains any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicant's claimed invention. Nor is there any disclosure or teaching in any of these references that would have suggested the desirability of combining any portions thereof effectively to suggest applicant's presently claimed invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

7. Claim 10 was rejected under 35 U.S.C. §103(a) over Ting et al. '437, Poris '711 and Batz, Jr. et al. '937, and claim 10 was rejected under 35 U.S.C. §103(a) over Talieh '992, Poris '711 and Batz, Jr. et al. '937. These rejections are traversed also.

Claim 10, which depends ultimately from claim 3, is allowable for the same reasons that claim 3 is allowable.

Moreover, Batz, Jr. et al. '937, cited for allegedly teaching temperature controlling means for an electrochemical system, does not address and overcome the above indicated deficiencies of Ting et al. '437, Talieh '992 and Poris '711.

For the foregoing reasons, none of Ting et al. '437, Poris '711 and Batz, Jr. et al. '937 contains any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicant's claimed invention. Nor is there any disclosure or teaching in any of these references that would have suggested the desirability of combining any portions thereof effectively to suggest applicant's presently claimed invention. Accordingly,

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reconsideration and withdrawal of this rejection are respectfully requested.

8. Claims 11 and 22 were rejected under 35 U.S.C. §103(a) over Ting et al. '437. The claims patentably define over the reference.

The presently claimed in-substrate selective electrochemical treatment system includes means for detecting at least one pinhole in the insulting layer including means for measuring the value of a current flowing between the electrode and the reversed polarity electrode plate, as recited in claim 11. This arrangement is nowhere disclosed or suggested in the cited reference.

Ting et al. '437 does not disclose the presently claimed in-substrate selective electrochemical treatment system including detecting at least one pinhole in the insulting layer including measuring the value of a current flowing between the electrode and the reversed polarity electrode plate. This method is nowhere disclosed or suggested in the cited reference,

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as explained above in the traverse of the rejection of claims 3, 4, 6-8 and 21.

The presently claimed in-substrate selective electrochemical treatment system also includes providing a frame-shaped container comprising a flexible sealing material embedded around an open end of thereof and located in a region that is smaller than an insulating substrate, applying a specified chemical treatment to such insulating substrate by supplying the chemical solution to the frame-shaped container through the chemical solution port, the chemical solution being circulated between the chemical solution port and the chemical solution discharge port. This method is nowhere disclosed or suggested in the cited reference.

Ting et al. '437 discloses filling and emptying the chamber with an electrolyte solution. However, Ting et al. '437 does not disclose circulating a chemical solution between the chemical solution port and the chemical solution discharge port of a frame-shaped container mounted via a flexible sealing material on a portion of an insulating substrate, as recited in applicant's claim 11. Ting et al. '437 mentions nothing about

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re-circulating a chemical solution between ports of the container. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

9. Claim 11 was rejected under 35 U.S.C. §103(a) over Talieh '992. The Examiner acknowledges that Talieh '992 does not disclose an in-substrate selective electrochemical treatment system including use of direct current in the processing step. Actually, the Office Action at page 8, contains a statement that Talieh '992 does not disclose means for measuring the value of a current flowing between the electrode and the reversed polarity electrode plate. Talieh '992 does not disclose measuring the value of a current flowing between the electrode and the reversed polarity electrode plate for detecting at least one pinhole in the insulting layer, as recited in applicant's claim 11.

For the foregoing reasons, Talieh '992 does not contain any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicant's claimed invention. Nor is there any disclosure or teaching in Talieh

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'992 that would have suggested the desirability of modifying any portions thereof to suggest applicant's presently claimed invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

10. Claim 11 was rejected under 35 U.S.C. §103(a) over Batz, Jr. et al. '937. The presently claimed in-substrate selective electrochemical treatment system includes means for detecting at least one pinhole in the insulting layer including means for measuring the value of a current flowing between the electrode and the reversed polarity electrode plate, as recited in claim 11. This arrangement is nowhere disclosed or suggested in the cited reference.

Batz, Jr. et al. '937 does not disclose measuring the value of a current flowing between the electrode and the reversed polarity electrode plate for detecting at least one pinhole in the insulting layer, as recited in applicant's claim 11.

Thus, Batz, Jr. et al. '937 contains no teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicant's claimed

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invention. Nor is there any disclosure or teaching in Batz, Jr. et al. '937 that would have suggested the desirability of modifying any portions thereof to suggest applicant's presently claimed invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

All claims 3-12, 21 and 22 are now proper in form and patentably distinguished over all grounds of rejection stated in the Office Action. Accordingly, allowance of all claims 3-12, 21 and 22 is respectfully requested.

If the only barrier to allowance is the presence of the non-elected claims, the Examiner is authorized to cancel those claims for that express purpose.

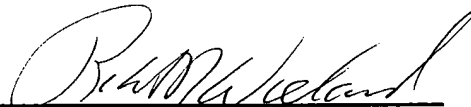
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Should the Examiner deem that any further action by the applicants would be desirable to place this application in even better condition for issue, the Examiner is requested to telephone applicant's undersigned representatives.

Respectfully submitted,

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